

CLAIMS

1. Oxygen nanobubble water, which is an aqueous solution having oxygen nanobubbles therein containing oxygen, wherein the bubble diameter thereof is 200 nm or less.
2. Oxygen nanobubble water which is an aqueous solution having oxygen nanobubbles therein containing oxygen, wherein the bubble diameter thereof is 200 nm or less and the salinity concentration of the aqueous solution is set in the range of 0.01% to 3.5%.
3. A method of producing oxygen nanobubble water, wherein oxygen nanobubbles are formed by applying physical irritation to oxygen-containing microbubbles contained in an aqueous solution, to thereby reduce the bubble diameter of the microbubble abruptly.
4. The method of producing oxygen nanobubble water according to claim 3, wherein in the step of abruptly reducing the microbubbles in size, when the diameter of the microbubble is reduced to 200 nm or less, a charge density on the surface of the microbubble increases and an electrostatic repulsive force is produced, whereby the size reduction of the microbubble stops.

5. The method of producing oxygen nanobubble water according to claim 3, wherein in the step of abruptly reducing microbubbles in size, due to ions adsorbed on a gas-liquid interface and an electrostatic attraction, both ions in the aqueous solution having opposite charges to each other and attracted to the vicinity of the interface are concentrated in a high concentration so as to serve as a shell surrounding the microbubble and inhibit the dissolution of oxygen within the microbubble into the aqueous solution, whereby the oxygen nanobubble is stabilized.

6. The method of producing oxygen nanobubble water according to claim 3, wherein the ions adsorbed on a gas-liquid interface are hydrogen ions and hydroxide ions and electrolytic ions within the aqueous solution are used as the ions attracted to the vicinity of the interface, whereby the oxygen nanobubble is stabilized.

7. The method of producing oxygen nanobubble water according to claim 3, wherein in the step of abruptly reducing microbubbles in size, the temperature within the microbubble sharply rises by adiabatic compression so that a physicochemical change in association with the ultrahigh temperature is applied around the microbubble, whereby the oxygen nanobubble is stabilized.

8. The method of producing oxygen nanobubble water according to claim 3, wherein the physical irritation is to discharge static electricity through the microbubbles using a discharge device.

9. The method of producing oxygen nanobubble water according to claim 3, wherein the physical irritation is to apply ultrasonic irradiation to the microbubbles using an ultrasonic generator.

10. The method of producing oxygen nanobubble water according to claim 3, wherein the physical irritation is to cause the aqueous solution to flow by driving a rotor mounted in a vessel containing therein the aqueous solution and use compression, expansion and vortex flow which are produced during the flowing.

11. The method of producing oxygen nanobubble water according to claim 3, wherein in the case of having a circulating circuit in the vessel, the physical irritation is to cause compression, expansion and vortex flow of the aqueous solution by passing the solution through an orifice or perforated plate having a single hole many holes after receiving the aqueous solution in which the microbubbles are contained.